

ART 34 AMDT

Claims as amended in PCT Chapter II proceedings

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Claims

1. A process for preparing modified metal oxides or metal aquoxides that are dispersible in organic solvents characterised by the following steps
 - 5 (I) by reaction of
 - (A) one or a plurality of metal oxide(s) or metal aquoxide(s) having a crystallite size of 4 to 100 nm, determined by x-ray diffraction on the 021 reflex, and a particle size of 5 to 500 nm, determined by photon correlation spectroscopy in dispersion
 - 10 with
 - (B) one or a plurality of organic sulfonic acid(s), where
 - (i) in case the reaction takes place in a mainly aqueous medium or in the absence of a diluent/solvent, the organic sulfonic acid is a mono-, di-, or trialkylbenzene sulfonic acid, wherein the alkyl residue(s) are C₁ to C₆ alkyl residue(s) and wherein the component (A), calculated as metal oxide, and (B) are used at weight ratios from 98:2 to 70:30, or
 - (ii) in case the reaction takes place in the presence of an organic aprotic solvent or an organic protic solvent, the organic sulfonic acid comprises at least 14 carbon atoms and at least one aromatic ring, and wherein the components (A), calculated as metal oxide, and (B) are used at weight ratios from 98:2 to 70:30.

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5 (II) drying the modified metal oxides or metal aquaoxides, and

10 (III) dispersing in organic solvents to get a dispersion

15 2. The process of claim 1,
characterized in that as metal oxides or metal aquaoxides, such metal oxides or metal aquaoxides containing aluminium, preferably aluminas, alumina hydrates, particularly preferred boehmitic or pseudoboehmitic aluminas, aluminum silicate, or Si/Al mixed oxides are employed.

20 3. A process according to any one of the preceding claims,
characterized in that the organic sulfonic acid is toluenesulfonic acid, preferably *p*-toluenesulfonic acid.

25 4. A process according to claim 1 or 2,
characterized in that the organic sulfonic acid is an organic compound of the R-SO₃H type, in which R is an alkyl-substituted aromatic hydrocarbon residue with 16 to 24 carbon atoms.

30 5. A process according to any one of the preceding claims,
characterized in that the metal oxides or metal aquaoxides and the organic sulfonic acid are brought into contact at temperatures from 0 to 140°C, preferably from 0 to less than 90°C.

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6. A process according to any one of the preceding
5 claims,
characterized in that the metal oxides or metal
aquoxydes are brought into contact with the organic
10 sulfonic acid for a period from 30 seconds to 7
days, preferably from 30 to 90 minutes, and pre-
ferably with stirring.

7. A process according to any one of the preceding
claims,
characterized in that the modified metal oxides or
15 metal aquoxides are dried by spray drying, freeze
drying, microwave drying, drying in supercritical
solvents, filtration, contact drying, or rotary drum
drying.

20 8. A process according to any one of the preceding
claims,
characterized in that the modified metal oxides/
metal aquoxides are dispersible in organic solvent
25 as dispersions having a solid content of 10 to 35
wt%, preferably 20 to 30 wt%.

9. A process according to any one of the preceding
claims,
characterized in that the modified alumina hydrate
30 is processed into molded articles by extrusion, pel-
leting, or spherical drop forming processes.

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10. A process according to any one of the preceding claims,
5 characterized in that the metal oxides or metal aquoxides are taken up in an organic solvent and this solvent is exchanged for a second solvent.

11. Metal oxide or metal aquioxide dispersion obtainable
10 by the use of a dispersant and a metal oxide or metal aquioxide according to any one of the preceding claims, wherein the dispersant
15 - a aprotic polar organic solvents,
- a protic, polar organic solvents having at least two carbon atoms, and/or
- a apolar organic solvents.

12. Metal oxide or metal aquioxide dispersion of claim
11,
20 characterized in that the dispersion contains an additive of at least one organic polymeric/oligomeric viscosity-adjusting agent, preferably cellulose, a cellulose derivative, a poly-acrylate, or a polyvinyl alcohol.

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13. Metal oxide or metal aquioxide dispersion of claim
11,
30 characterized in that the dispersant is a solvent-based paint or lacquer or a water-insoluble plastics.

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14. Use of the metal oxides or metal aquoxides
5 dispersions of claim 11 for preparing coatings,
preferably transparent coatings on foils,
metals/metal oxides, glass, PVC, and other plastics.

15. Use of the metal oxides or metal aquoxides
10 dispersions of claim 11 for the production of
catalyst carrier.

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